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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,492	06/19/2000	Daniel Davis	BD-99-091	2261

7590 08/17/2004

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EXAMINER	
NGUYEN, HOANG V	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/596,492	DAVIS, DANIEL	
	Examiner	Art Unit	
	Hoang V Nguyen	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26-34,40-44* is/are allowed.

6)☒ Claim(s) *1-25 and 35-37* is/are rejected.

7)☒ Claim(s) *38 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/14/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This Office Action is pursuant to the resumption of prosecution request of 15 December 2003.

2. Applicant, in a communication dated 20 November 2001, had elected not to respond to the rejections under 35 USC 102(e) as applied to claims 1-25, cited in the Office Action dated 20 August 2001. Therefore, the applied 35 USC 102(e) rejections remain and provided below.

Claim Objections

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 27-45 have been renumbered as 26-44.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1-25 and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Toland et al (US 6,268,835).

Regarding claim 1, Toland (Figures 11-14) discloses a parabolic reflector phased array antenna comprising a reflector support structure 1418, a plurality of parabolic reflector cells 1200 mounted side by side in an array in an interior portion of the support structure, each reflector cell includes a parabolic RF signal reflector and an array of RF feed elements 1206, each reflector having a flexible reflecting surface 1204 and a plurality of elongated edges defining a geometric shape, and including respective corner portions (not numbered) at the intersection of pairs of edges, respective rigid support members 1208 located at the corner portions of the reflector for stiffening the reflector and the elongated edges, and also for providing a support for the array of feed elements, a set of flexible support members (not numbered) extending between the rigid support members of each reflector cell and the respective array of feed elements 1206 for positioning the array above the RF signal reflector, and a mechanism 1210 located beneath each of the RF signal reflectors for pulling the respective flexible reflecting surface down to a substantially parabolic shape.

Regarding claim 2, as applied to claim 1, Figure 14 of Toland shows that the reflector support structure 1418 comprises a toroidal support structure.

Regarding claim 3, as applied to claim 1, Figure 13 of Toland shows that the plurality of parabolic reflector cells are comprised of super element reflector cells arranged in a planar array.

Regarding claim 4, as applied to claim 1, Figure 12 of Toland shows additional support member (not numbered) located at the edges of the reflecting surface to prevent stretching of the reflector along the edges.

Regarding claim 5, as applied to claim 1, Figure 2 of Toland shows that the rigid support members 1208 comprise a plurality of elongated posts.

Regarding claim 6, as applied to claim 1, Figure 13 of Toland shows that the set of flexible support members comprises wire support members.

Regarding claim 7, as applied to claim 1, Figure 12 of Toland shows that the mechanism 1210 for pulling the reflecting surface down comprises a backup structure including a set of wires and tension cables.

Regarding claim 8, as applied to claim 1, Figure 12 of Toland shows that the reflecting surface 1204 comprises a reflector mesh.

Regarding claim 9, as applied to claim 1, Figure 12 of Toland shows that the array of feed elements 1206 comprises a planar array of feed elements.

Regarding claim 10, as applied to claim 9, Toland (col 4, lines 44-60) teaches that the array of feed elements in each reflector cell is selectively activated in groups of feed elements and wherein the groups are varied in position relative to the focal point of the array to steer a transmitted and/or received beam generated by one or more of the reflector cells.

Regarding claims 11-16, as applied to claim 10, Toland (abstract, col 6 line 15 through col 7 line 62) teaches that the array can be steered and feed elements can be randomly selected in order to relieve a grating lobe problem.

Regarding claims 17-25, the antenna structure of Toland, as discussed in claims 1-16, would enable the method of steering a transmitted and/or received beam of a phased array antenna system comprising the steps as claimed.

Regarding claim 35, Toland (Figure 1) discloses an antenna pattern comprising a reflector array pattern in product with array-fed reflector patterns, the reflector array pattern generated by a lattice of four or more reflector antennas, the pattern from each of the reflector antennas comprising a predetermined geometric shape, and the array-fed reflector patterns generated by selectively actuable array feeds above the reflector antennas.

Regarding claim 36, as applied to claim 35, Toland (Figure 1) teaches that the reflector array pattern is a reflector array pattern corresponding to a lattice of reflector antennas disposed adjacent to one another.

Regarding claim 37, as applied to claim 35, Toland (Figure 1) teaches that at least one of the array-fed reflector patterns is an array feed pattern corresponding to an array feed comprising individual feeds arranged in a lattice.

Allowable Subject Matter

6. Claims 26-34 and 40-44 are allowed.

7. Claims 38 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 26, Toland fails to specifically teach, among other features, that the rim of the reflector defines a polygonal geometric shape. The points of polygonal geometric shape reflector affect the charge density and current on the reflector plate that produce different

radiation field, especially in the near-field, giving a substantially different impedance as compared to the reflector having circular shape.

Claims 27-34 are allowed for depending on claim 26.

Regarding claim 38, Toland fails to specifically teach, among other features, that the reflector array pattern is a reflector array pattern corresponding to a substantially hexagonal lattice of reflector antennas.

Regarding claim 39, Toland fails to specifically teach, among other features, that at least one of the array-fed reflector patterns is an array-fed reflector pattern corresponding to a feed array illuminating a reflector and comprising individual feeds arranged in a hexagonal lattice.

Regarding claim 40, Toland fails to specifically teach, among other features, that the reflector having a reflector surface having a periphery in the shape of a polygon and including rigid support posts located at corner points of the periphery.

Claims 41-44 are allowed for depending on claim 40.

Correspondence

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V Nguyen whose telephone number is (571) 272-1825. The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hvn
8/12/04

HOANG V. NGUYEN
PRIMARY EXAMINER